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| 10/648,109  | 08/26/2003  | Toshio Yamamoto      | RR-552              | 3161             |
| 20427   | 7590        | 09/10/2004           | EXAMINER            |                  |
| RODMAN RODMAN<br>7 SOUTH BROADWAY<br>WHITE PLAINS, NY 10601 |             |                      | NGUYEN, HANH N      |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2834                |                  |

DATE MAILED: 09/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/648,109

Applicant(s)

YAMAMOTO ET AL.

Examiner

Nguyen N Hanh

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,10,11 and 14-25 is/are rejected.
- 7) ☒ Claim(s) 8,9,12 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claim 22 is objected to because of the following informalities: there is no antecedent basis for "the distal end" in line 25. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 10, 11 and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al.

Regarding claim 1, Tanaka et al. disclose a motor comprising: a stator (21 in Fig. 1), which has a plurality of magnetic poles arranged along the circumferential direction of the stator; an armature rotatable relative to the stator, the armature including: a core having a plurality of teeth, and wherein a coil is wound about each tooth; a commutator, which has a plurality of segments arranged along the circumferential direction of the commutator (Col. 3, lines 38-53); and a plurality of short-circuit members (100 in Fig. 22 and 23), wherein each short-circuit member short-circuits a predetermined number of segments with one another; and an anode supply brush and a cathode supply brush (33 in Fig. 1), wherein the supply brushes slide against the commutator, and wherein the supply brushes are arranged at a predetermined angular interval about the axis of the commutator, wherein each short-circuit member has a base portion and a plurality of

arms extending from the base portion, wherein each of the arms of each short-circuit member corresponds to one of the predetermined number of the segments to be short-circuited (Fig. 10) and has a segment connection portion (a welding portion as described in Col. 5, lines 50-59) to which the corresponding segment is connected, wherein the base portions are laminated to have a multi-layer structure along the axial direction of the commutator such that the short-circuit members form a laminated body, and wherein the arms are formed such that all the segment connection portions are located in a single plane perpendicular to the axis of the laminated body (Fig. 22 and 23 and Col. 5, lines 54-59).

Regarding claim 2, Tanaka et al. also disclose a motor wherein the base portion of the short-circuit member is annular or arcuate.

Regarding claim 3, Tanaka et al. also disclose a motor wherein an insulating member (31 in Fig. 1) is located between the base portions of each adjacent pair of the layers in the laminated body, and wherein the insulating members have a diameter greater than the diameter of the base portions and are formed not to interfere with the arms.

Regarding claim 10, Tanaka et al. also disclose a motor wherein the arms of each short-circuit member radially extend from the base portion, and are arranged at a predetermined angular interval about the base portion.

Regarding claim 11, Tanaka et al. also disclose a motor wherein the short-circuit members are laminated such that all the arms do not interfere with one another with respect to the circumferential direction of the laminated body.

Regarding claim 14, Tanaka et al. also disclose a motor wherein two of the arms of each short-circuit member are each provided with a connector (101 in Fig. 22), and wherein one of the two connectors is connected to an end of one of the coils and the other connector connected to an end of another coil (by means of commutator segments).

Regarding claim 15, Tanaka et al. also disclose a motor wherein one of the arms of each short-circuit member is provided with a connector, and wherein the connector is connected to an end of one of the coils and to an end of another coil.

Regarding claim 16, Tanaka et al. also disclose a motor wherein at least part of the laminated body is located in the axial range of the core.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al.

Regarding claim 4, Tanaka et al. disclose the motor wherein the arms include arms, and wherein the arms are welded together such that the corresponding segment connection portions are each located in a different position from the position of the corresponding base portion with respect to the axial direction the laminated body.

Tanaka et al. fail to show the structure of the arms are formed by bending. However, it

would have been obvious at the time the invention was made to a person having an ordinary skill in the art to form the arms by bending one piece of metal, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard V. Detroit Stove Works*, 150 U.S. 164 (1883).

Regarding claim 5, Tanaka et al. also disclose the motor wherein each arm has a first portion radially extending from the corresponding base portion, a second portion extending in the axial direction of the laminated body from the distal end of the first portion, and a third portion radially extending from the distal end of the second portion, and wherein the segment connection portion is provided at the third portion (Fig. 22).

Regarding claim 6, Tanaka et al. also disclose the motor wherein the short-circuit member that is located at an axial end of the laminated body is a first short-circuit member, wherein the arms of the first short-circuit member does not have axially extension portion, and wherein all the segment connection portions are located in a single plane that is perpendicular to the axis of the laminated body and contains the first short-circuit member (Fig. 22).

Regarding claim 7, Tanaka et al. also disclose the motor wherein each arm has a first portion radially extending from the corresponding base portion, a second portion extending in the axial distal end of the second portion, wherein the segment connection portion is provided at the third portion, and wherein the greater the distance from the first short-circuit member in the axial direction of the laminated body is, the greater the length of the second portions of the short-circuit member becomes (Fig. 22).

4. Claims 17,18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. in view of Lau et al.

Regarding claim 17, Tanaka et al. disclose the motor wherein the core has a center bore extending through the core, wherein the armature includes a rotary shaft about which the commutator and the laminated body are fitted. Tanaka et al. fail to show a coupling member for coupling the core with the rotary shaft, wherein the coupling member is fitted about the rotary shaft and fitted to the center bore, and wherein the coupling member has a hollow portion for accommodating at least part of the laminated body.

However, Lau et al. disclose a motor including a coupling member (26 in Fig. 1) for coupling the core with the rotary shaft, wherein the coupling member is fitted about the rotary shaft and fitted to the center bore, and wherein the coupling member has a hollow portion for accommodating at least part of the commutator (20) for the purpose of forming a double insulated motor (Col. 2, lines 33-36).

Since Tanaka et al. and Lau et al. are in the same field of endeavor, the purpose disclosed by Lau et al. would have been recognized in the pertinent art of Tanaka et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Tanaka et al. by a coupling member for coupling the core with the rotary shaft, wherein the coupling member is fitted about the rotary shaft and fitted to the center bore, and wherein the coupling member has a hollow portion for accommodating at least part of the laminated body as taught by Lau et al. for the purpose of forming a double insulated motor.

Regarding claim 18, Lau et al. also disclose the motor wherein the coupling member has a cylindrical portion and a bottom portion, wherein the cylindrical portion is fitted to the center bore of the core, wherein the bottom portion is located in the axial range of the cylindrical portion, and wherein the bottom portion, together with the cylindrical portion, defines the hollow portion in the coupling member (Fig. 2).

Regarding claim 20, Lau et al. also disclose the motor wherein the coupling member has a fixing portion, wherein the fixing portion extends from the bottom portion in the axial direction of the coupling member and is fitted about the rotary shaft.

5. Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. in view of Lau et al. and further in view of Daikoku et al.

Regarding claims 19 and 21, Tanaka et al. and Lau et al. disclose the invention except for showing the motor wherein the laminated body is located between the core and the commutator with respect to the axial direction of the rotary shaft.

However, Daikoku et al. et al. disclose a motor wherein the laminated body (38 in Fig. 22) is located between the core (4) and the commutator (6) with respect to the axial direction of the rotary shaft (3) for the purpose of reducing the size of the motor (Col. 1, lines 34-37).

Since Tanaka et al., Lau et al. and Daikoku et al. are in the same field of endeavor, the purpose disclosed by Daikoku et al. would have been recognized in the pertinent art of Tanaka et al. and Lau et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Tanaka et al. and Lau et al. by forming a



motor wherein the laminated body is located between the core and the commutator with respect to the axial direction of the rotary shaft as taught by Daikoku et al. for the purpose of reducing the size of the motor.

6. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. in view of Daikoku et al.

Regarding claim 22, Tanaka et al. disclose all limitations of the invention (refer to the rejection of claim 1 and Fig. 1 of Takana et al.) except for showing the motor wherein the laminated body is located between the core and fitted to part of the commutator.

However, Daikoku et al. et al. disclose a motor wherein the laminated body (38 in Fig. 22) is located between the core (4) and the commutator (6) and fitted to part of the commutator for the purpose of reducing the size of the motor (Col. 1, lines 34-37).

Since Tanaka et al. and Daikoku et al. are in the same field of endeavor, the purpose disclosed by Daikoku et al. would have been recognized in the pertinent art of Tanaka et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Tanaka et al. by forming a motor wherein the laminated body is located between the core and the commutator and fitted to part of the commutator as taught by Daikoku et al. for the purpose of reducing the size of the motor.

Regarding claim 23, Tanaka et al. disclose all limitations of the invention (please compare Fig. 22 of Tanaka et al. and Fig. 4 of the present invention) except showing the

arm is formed by bending a single piece of metal. It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to form the arms of the short circuit element as in claim 23, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard V. Detroit Stove Works*, 150 U.S. 164 (1983).

7. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. in view of Daikoku et al. and further in view of Lau et al.

Regarding claim 24, Tanaka et al. and Daikoku et al. disclose all limitations of the invention except for showing the motor wherein the core has a center bore extending through the core, wherein the armature includes a coupling member for coupling the core with the rotary shaft, wherein the coupling member is fitted about the rotary shaft and fitted to the center bore, and wherein the coupling member has a hollow portion for accommodating at least part of the laminated body.

However, Lau et al. disclose a motor wherein the core has a center bore extending through the core (18), wherein the armature includes a coupling member (26 in Fig. 2) for coupling the core with the rotary shaft, wherein the coupling member is fitted about the rotary shaft and fitted to the center bore, and wherein the coupling member has a hollow portion for accommodating at least part of the laminated body for the purpose of forming a double insulated motor (Col. 2, lines 33-36).

Since Tanaka et al., Daikoku et al. and Lau et al. are in the same field of endeavor, the purpose disclosed by Lau et al. would have been recognized in the pertinent art of Tanaka et al. and Daikoku et al.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Tanaka et al. and Daikoku et al. by forming the motor wherein the core has a center bore extending through the core, wherein the armature includes a coupling member for coupling the core with the rotary shaft, wherein the coupling member is fitted about the rotary shaft and fitted to the center bore, and wherein the coupling member has a hollow portion for accommodating at least part of the laminated body as taught by Lau et al. for the purpose of forming a double insulated motor.

Regarding claim 25, Lau et al. also show the motor wherein the coupling member has a cylindrical portion and a bottom portion, wherein the cylindrical portion is fitted to the center bore of the core, wherein the bottom portion is located in the axial range of the cylindrical portion (at both ends as shown in Fig. 2), and wherein the bottom portion, together with the cylindrical portion, defines the hollow portion in the coupling member.

***Allowable Subject Matter***

8. Claims 8,9,12 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if claims 8 and 12 are rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 8, the prior art of record does not show a motor as described in claim 1 wherein the number of the magnetic poles is represented by  $2N$  ( $N$  is an integer number greater than or equal to three), wherein the number  $M$  of the coils is represented by  $2N \pm 2$ , and wherein the number  $S$  of the segments is represented by  $N \times M$ .

Regarding claim 12, the prior art of record does not show a motor as described in claim 1 wherein the arms include specific arms each of which is provided with a connector at the distal end, wherein each connector is connected to an end of one of the coils, and wherein the width of the connectors is greater than the width of the arms with respect to the circumferential direction of the short-circuit.

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (571) 272-2031. The examiner can normally be reached on Monday through Friday.

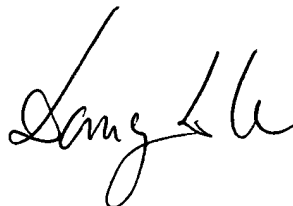
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberger, can be reached on (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Art Unit: 2834

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

September 6, 2004

A handwritten signature in cursive script, appearing to read "Dangle", written in black ink.

**DANGLE  
PRIMARY EXAMINER**